

March 22, 2001

TO: District Superintendents and Directors of Transportation

FROM: Donald N. Tudor, Director
Office of Transportation

SUBJECT: School Bus Safety Recommendations from the National Transportation Safety Board

The State Department of Education asks South Carolina's school districts to assist in addressing a recent school bus safety recommendation of the National Transportation Safety Board.

The National Transportation Safety Board is an independent Federal agency charged by the United States Congress with investigating all types of transportation accidents, determining their probable cause, and making safety recommendations to prevent similar accidents from occurring in the future. As a result of numerous investigations of school bus crashes by the Safety Board, and the safety recommendations from those investigations, a number of safety improvements have been made to school buses and school bus operations over the past decades.

On November 14, 2000, the Safety Board completed its investigation of the school bus/dump truck crash that occurred on October 21, 1999, in Central Bridge, New York. In that crash, a school bus carrying 44 children and 8 adults was struck on the right side by a dump truck towing a utility trailer. The Safety Board estimated that the school bus was traveling at about 24 miles per hour and the dump truck was traveling at about 39 miles per hour at the time of impact. Seven school bus passengers were seriously injured, 28 passengers of the school bus received minor injuries, and 13 passengers and the school bus driver were uninjured. There were no medical records for 4 of the school bus passengers and, hence, it was not possible to determine if they were injured. However, it is assumed that either their injuries were minor or they were uninjured.

During the investigation of the Central Bridge crash, the Safety Board identified two safety issues that it believes it can help remedy.

Safety Issue #1 -- Protruding emergency exit door handles and latching mechanisms

In the Central Bridge crash, an adult chaperone was seated in the flip-up seat adjacent to the side emergency exit door. Due to the dynamics of the crash, this adult was initially propelled into the seat back in front of her, and then fell towards the side emergency exit door.

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While no injuries were caused in the Central Bridge crash by the protruding emergency exit door handle or latching mechanism, the Safety Board believes it is clear that such devices could result in significant, and possibly fatal, injuries. For example, if a school bus passenger is seated in the flip-up seat next to the side emergency exit, and the school bus is impacted on that side, that passenger would be propelled into the protruding emergency exit handle and/or latching mechanism.

In its report, the Safety Board noted that the components of the side emergency exit door release mechanism protruded from 1.9 to 4.5 inches into the occupant space of the flip-up seat. These components consisted of unprotected metal rods, bars, handle, and bolts. None of the components were padded or recessed as a means of providing passenger protection. The Safety Board believes that a passenger seated beside a side emergency exit door during a crash could strike these surfaces with forces that could easily result in minor, serious, and even fatal injuries. South Carolina school buses use emergency release handles on emergency exit doors similar to those found in the New York school bus.

The National Transportation Safety Board has recommended that all school districts be informed of the potential for injury to passengers from protruding door handles or latching mechanisms on emergency exit doors. The Safety Board asked school bus operators to consider not placing passengers in those seat positions adjacent to emergency exit doors so equipped.

The State Department of Education agrees with the Safety Board and has presented several response options to the Student Transportation Steering Committee. The Steering Committee recommended the following response.

That the Department of Education would inform all school districts of the potential for injury to passengers from protruding door handles or latching mechanisms on emergency exit doors. School districts are asked to consider not placing passengers in those seat positions adjacent to emergency exit doors so equipped.

In addition, the Department, through the design of school bus specifications, will also be working with school bus manufacturers to look at the potential for modifying the emergency exit door handle and emergency release mechanisms to reduce the potential that such components could cause injuries to passengers seated in a flip-up seat next to a side emergency exit door.

Safety Issue #2 – Bottom seat cushion latching clips

During the Central Bridge crash, a number of bottom seat cushions were displaced because the latching clips at the base of the seat cushions were unlatched or loosely attached. As a result, two lap belt-restrained passengers on the right side of the bus (the side impacted by the dump truck) came to rest, still restrained, with their knees almost touching the bus floor and their backs against the dislodged

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bottom seat cushion. During the crash, the bottom seat cushion most likely flipped upward at its hinge point on the front of the seat frame. The Safety Board believes these passengers may have sustained more serious injuries because the bottom seat cushion became unlatched during the crash.

Since 1984, the Safety Board has found seat cushion latching to be an issue in a number of its investigations and even recommended solutions concerning the attachment of the bottom seat cushion to the seat frame. In 1987, the National Highway Traffic Safety Administration surveyed school bus manufacturers and found that most indicated they would permanently affix the bottom seat cushions to the seat frames in future production. According to the Safety Board, many school bus manufacturers are still using clips to affix the bottom seat cushion to the seat frame.

Based on its inspection of the school bus involved in the Central Bridge crash, the Safety Board is concerned that bottom seat cushions are not being securely reattached to the seat frame after routine cleaning of the school bus. As a result, the Safety Board issued the following Safety Recommendation. "Inform your members again of the safety hazards of not ensuring that the seat cushion bottom latching clips are properly latched at all times."

The State Department of Education agrees with the Safety Board that bottom seat cushions can be a safety hazard if they are not securely latched or fastened to the seat frames. The entire seating structure of a school bus is an integral part of the crash protection built into the school bus. If any part of it is not installed correctly, the ability of the school bus to provide the highest level of safety to its passengers is affected. While easily removable bottom seat cushions are beneficial to facilitate the cleaning of school bus interiors, it is imperative that the bottom seat cushions be properly re-latched after cleaning.

The State Department of Education is implementing the following strategy to address this safety issue.

The Department is reviewing its inspection procedures to assure that seat bottom securement is periodically checked. The Department's training program will also ensure that all relevant personnel are fully informed on the importance of properly re-latching bottom seat cushions anytime they are unlatched and that these personnel know how to inspect bottom seat cushion latches to ensure they are still capable of securely retaining the bottom seat cushion to the seat frame, and how to remedy any that are not properly latched or damaged.

DNT/bc